

## THE IMMATURE STAGES AND SEASONALITY OF *PETRELAEA TOMBUGENSIS* (ROBER) (LEPIDOPTERA: LYCAENIDAE)

P.R. SAMSON<sup>1</sup> and T.A. LAMBKIN<sup>2</sup>

<sup>1</sup>BSES Limited, PMB 57, Mackay Mail Centre, Qld 4741

<sup>2</sup>Queensland Department of Primary Industries, 80 Meiers Road, Indooroopilly, Qld 4068

### Abstract

The immature stages of *Petrelaea tombugensis* (Rober), from Wongaling Beach in northern Queensland, are described and illustrated. The food plant was *Terminalia catappa* L. (Combretaceae). In Torres Strait, adults can be common just prior to the monsoon, coincident with the first flush of *Terminalia* flowers.

### Introduction

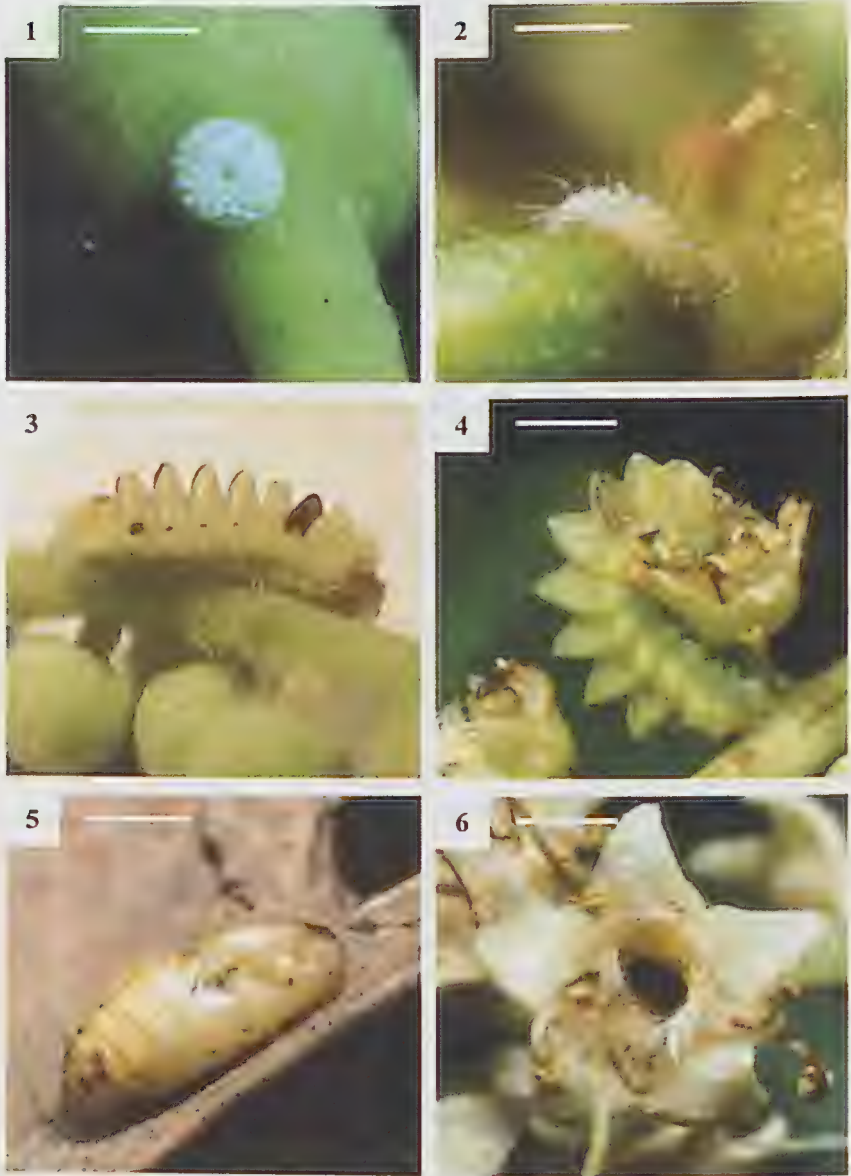
*Petrelaea tombugensis* (Rober) occurs within Australia in tropical areas of the Northern Territory and Queensland (Braby 2000). Adults fly around flowering *Terminalia catappa* L. and *T. muelleri* Benth. (Combretaceae) on islands in Torres Strait and were observed ovipositing on *T. catappa* blossom at El Arish in northern Queensland (Muller *et al.* 1998). Here we describe the immature stages from material collected at Wongaling Beach near El Arish and record observations on the flight period in Torres Strait.

### Immature stages

*Egg* (Fig. 1). A flattened sphere; white; diameter 0.5 mm; sides and outer top surface with ridges radiating from large knobs and forming mostly three-sided pits; central part of top surface with irregular network of ridges.

*First instar larva* (Fig. 2). Buff coloured; head dark grey. With both short and long colourless lateral hairs and colourless posterior hairs; prothorax (T1) with two pairs of long brown dorsal and dorsolateral hairs directed forward and colourless anterior hairs; T2 with two pairs of long brown dorsal and subdorsal hairs directed forward and one pair of long brown dorsal hairs directed backward; T3-abdominal segment 8 (A8) each with one pair of long brown dorsal hairs; T2-A6 also each with one pair of short colourless dorsal hairs.

*Final instar larva* (Figs 3-4). Green; T1 reddish brown anteriorly; A1 reddish brown subdorsally; a reddish brown middorsal line most pronounced posterior to dorsal points on A2-A6; head brown. Newcomer's organ and tentacular organs present. Body with colourless anterior and posterior hairs and dense stellate colourless or reddish brown secondary setae; T1 with ridge in front of prothoracic plate bearing numerous pairs of colourless hairs; deep dorsal divisions between segments T3-A7; T2-A1 each with a pair of subdorsal knobs and A2-A6 with middorsal pointed knobs; transverse ridges on A7-A8; T2-A8 with lateral lobes, angular on A1-A6 but otherwise rounded, each with one or two pairs of colourless hairs; T2-T3 each with two pairs of colourless dorsal and dorsolateral hairs.



**Figs 1-6.** *Petrelaea tombugensis*; all except (3) from Wongaling Beach: (1) egg; (2) first instar larva, head to right; (3) late instar larva from Thursday Island, Torres Strait; (4) final instar larva feeding; (5) pupa; (6) *Terminalia* flower eaten out by larva. Scale bars (1-2) = 0.5 mm, (3-6) = 2 mm.

*Pupa* (Fig. 5). Covered with short colourless hairs; thorax and wing covers greyish brown and abdomen yellowish brown, sparsely covered with dark brown spots; a dark brown middorsal patch on T1; dark brown patches laterally on T2 and dorsolaterally on T3; abdomen with dark brown dorsolateral patches, especially on A1 and A5-A6, and with a brown middorsal line; attached by anal hooks and central girdle.

### Life history notes

At Wongaling Beach, eggs of *P. tombugensis* were found in December 2001, laid singly on flower buds of *Terminalia catappa*. The feeding habits of early instar larvae were not closely observed, but larvae ultimately died when supplied only with unopened buds. Larger larvae fed only on open flowers while buds on the same spikes were not eaten. Larvae curled across the tops of the flowers and ate the nectaries, leaving the stamens and calyx intact (Figs 4, 6). The apparent dependence on open flowers may explain the larval mortality also recorded by Muller *et al.* (1998) when they attempted to rear this species on *Terminalia* flower buds. The larval and pupal stages occupied about 2 weeks and 1 week respectively, when reared in southern Queensland at ambient conditions in January. Adults of this species have recently (April 2002) been collected flying around *T. catappa* at Townsville by Graham Wurtz (S. Johnson, pers. comm.), extending the known range substantially southwards from El Arish.

### Adult seasonality

Muller *et al.* (1998) briefly outlined information on adult habits and flight period in the wet tropics of northern Queensland and in Torres Strait. Since then, one of the authors (TAL) has recorded more details of the seasonality of this species in Torres Strait. Adults are abundant just prior to the monsoon, coinciding with the first flush of flowers on leafless trees of *T. catappa* and *T. muelleri* (both species tend to flower simultaneously). Large numbers of adults (>100) have been observed flying around mature trees of *T. catappa* on Murray Island in late October and *T. muelleri* on Sue Island in late December. *P. tombugensis* is generally less common over the remainder of the flowering period, which can last until May, just prior to the dry season, after which both *Terminalia* species become almost leafless. The recorded flight period is September-May (Muller *et al.* 1998).

### References

- BRABY, M.F. 2000. *Butterflies of Australia: their identification, biology and distribution*. CSIRO Publishing, Melbourne; xxvii + 976 pp.
- MULLER, C.J., OLIVE, J. and LAMBKIN, T.A. 1998. New records for *Petrelaea tombugensis* (Rober) (Lepidoptera: Lycaenidae) in Queensland. *Australian Entomologist* 25: 61-63.